PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-203087
(43)Date of publication of application : 30.07.1999

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(51)Int.CI. G06F 3/12
G06F 13/00
G06F 15/00

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(21)Application number : 10-008113
(22)Date of filing : 19.01.1998
(71)Applicant : BROTHER IND LTD
(72)Inventor : FUNAHASHI HIROYUKI

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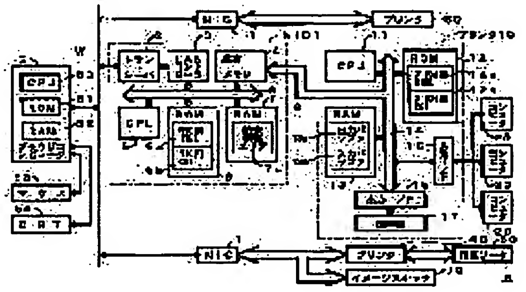
(54) NETWORK SYSTEM, TERMINAL EQUIPMENT AND STORAGE MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To efficiently obtain information of terminal equipments without using a server computer in a network system provided with plural terminal equipments connected to the network and a management device managing the respective terminal equipments through the network.

SOLUTION: In this network system S, respective printers 10 being the terminal equipments obtain information of the other printers 30,40 and the like from the other printer connected through the network W and transmit the obtained information to a browser computer G being a management device together with its own information. Thus, the browser computer G can obtain information of the other printers together with information of the printer only by obtaining information from one printer. The network system S can efficiently obtain information of the printer without using the server computer.



LEGAL STATUS

[Date of request for examination] 28.11.2003

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's

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CLAIMS

[Claim(s)]
[Claim 1] Two or more terminal units connected to the network, and the management equipment which manages this each terminal unit through the above-mentioned network, An information acquisition means by which are a ******** network system and at least one specific terminal unit acquires the information on these other terminal units from other terminal units connected through the above-mentioned network among the above-mentioned terminal units, The network system characterized by having an information transmitting means to transmit the information on a terminal unit besides the above acquired with this information acquisition means to the above-mentioned management equipment with information of a specific terminal unit own [the].
[Claim 2] The network system according to claim 1 characterized by the information on a terminal unit besides the above including the link information for specifying the terminal unit on the above-mentioned network.
[Claim 3] A terminal unit selection means by which are the network system [equipped with at least two or more above-mentioned specific terminal units] according to claim 1 or 2, and the above-mentioned management equipment chooses one specific terminal unit, The information-requirements means to which the information on each above-mentioned terminal unit which contains self in the information transmitting means of the above-mentioned specific terminal unit chosen with this terminal unit selection means is made to transmit, The network system characterized by having the selection change means which changes the above-mentioned specific terminal unit which the above-mentioned terminal unit selection means chooses.
[Claim 4] It is the network system according to claim 1 to 3 which connected at least one specific terminal unit A to the above-mentioned network through the interface device among the above-mentioned specific terminal units. When the specific terminal unit A transmits [the above-mentioned management equipment] the information on each above-mentioned terminal unit to the above-mentioned management equipment, The network system characterized by having an interface information acquisition means to acquire the information on the above-mentioned interface device to the interface device connected to the specific terminal unit A.
[Claim 5] The network system according to claim 1 to 4 characterized by equipping the above-mentioned management equipment with a setting modification means to change a setup of the specific terminal unit or an interface device, further to the specific terminal unit or interface device which has transmitted the above-mentioned information to the management equipment.
[Claim 6] The terminal unit characterized by to have an information acquisition means are two or more of other terminal units and the connected terminal unit, and acquire the information on these terminal units of other from other terminal units connected through the above-mentioned network, and an information transmitting means transmit the information on a terminal unit besides the above acquired with this information acquisition means to the above-mentioned network with information of a terminal unit own [the], through a network.
[Claim 7] The terminal unit according to claim 6 characterized by the information on a terminal unit besides the above including the link information for specifying the terminal unit on the above-mentioned network.
[Claim 8] The storage characterized by memorizing the software program for operating a computer as each means claims 3 and 4 which constitute the above-mentioned management equipment, or given in five.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the terminal unit and storage which can constitute the network system in the network system equipped with two or more terminal units connected to the network, and the management equipment which manages this each terminal unit through the above-mentioned network, and a list.
[0002]
[Description of the Prior Art] Conventionally, the network system which manages two or more printers as a terminal unit by one computer as management equipment as this kind of a network system is known. In this network system, the situation of each printer of operation, the condition of failure, etc. are intensively manageable by one above-mentioned computer. For this reason, when a printer is fixed efficiently or one set of a printer becomes use impossible, it can manage so that other printers may be substituted for this.
[0003] When checking the situation of each printer of operation etc. in this kind of network system, he needed to visit even the computer which is managing and effectiveness was bad. Then, a server computer is connected to a network and it is possible to collect the information on each terminal unit by this server computer. In this case, by communicating with a server computer, management equipment can acquire the information on all terminal units, and can attain increase in efficiency and speeding up of processing.
[0004]
[Problem(s) to be Solved by the Invention] However, if a server computer is used, the configuration of a network system will be complicated and the installation cost of the network system will increase. Then, this invention was made for the purpose of acquiring the information on a terminal unit efficiently in the network system equipped with two or more terminal units connected to the network, and the management equipment which manages this each terminal unit through the above-mentioned network, without using a server computer.
[0005]
[The means for solving a technical problem and an effect of the invention] Invention according to claim 1 made since the above-mentioned purpose was attained Two or more terminal units connected to the network, and the management equipment which manages this each terminal unit through the above-mentioned network, An information acquisition means by which are a ******** network system and at least one specific terminal unit acquires the information on these other terminal units from other terminal units connected through the above-mentioned network among the above-mentioned terminal units, It is characterized by having an information transmitting means to transmit the information on a terminal unit besides the above acquired with this information acquisition means to the above-mentioned management equipment with information of a specific terminal unit own [the].
[0006] Thus, in constituted this invention, a specific terminal unit transmits the information on a terminal unit besides the above acquired with the information acquisition means to management equipment with information of a specific terminal unit own [the] with an information transmitting means while acquiring the information on these other terminal units from other terminal units connected through the network with an information acquisition means.
[0007] For this reason, with management equipment, the information on a terminal unit besides the above is also acquirable with the information on that specific terminal unit only by acquiring information from a specific terminal unit. Therefore, in this invention, the information on a terminal unit can be acquired efficiently,

without using a server computer. In addition, a specific terminal unit must not acquire all the information on the terminal units of the others connected through the network, and may acquire the information on some terminal units. For example, you may make it some printers acquire the information on all the scanners of others [scanners / some] for the information on all other printers, respectively by the system which connected two or more printers and two or more scanners to the network as a terminal unit.

[0008] In addition to the configuration according to claim 1, invention according to claim 2 is characterized by the information on a terminal unit besides the above including the link information for specifying the terminal unit on the above-mentioned network. Here, link information is information which shows the whereabouts of the information on the terminal unit for specifying the terminal unit on a network, as a link information and URL are mentioned as an example. If even such link information is known, based on the link information, the detailed information on a terminal unit is easily acquirable. For this reason, when it includes link information as information on other terminal units, the amount of information which the information acquisition means of a terminal unit must acquire, and the amount of information which an information transmitting means must transmit can be reduced. Therefore, in this invention, in addition to an effect of the invention according to claim 1, the amount of information processing of an information acquisition means and an information transmitting means is mitigated further, and the effectiveness that the processing speed can be raised further arises.

[0009] A terminal unit selection means by which invention according to claim 3 is the network system [equipped with at least two or more above-mentioned specific terminal units] according to claim 1 or 2, and the above-mentioned management equipment chooses one specific terminal unit, It is characterized by having the information-requirements means to which the information on each above-mentioned terminal unit which contains self in the information transmitting means of the above-mentioned specific terminal unit chosen with this terminal unit selection means is made to transmit, and the selection change means which changes the above-mentioned specific terminal unit which the above-mentioned terminal unit selection means chooses.

[0010] The network system is equipped with two or more specific terminal units by this invention, and management equipment can make the information on each above-mentioned terminal unit which contains self in the information transmitting means of the specific terminal unit transmit with an information-requirements means while choosing one specific terminal unit with a terminal unit selection means. Moreover, the specific terminal unit which the above-mentioned terminal unit selection means chooses can also be changed with a selection change means. For this reason, there is comparatively little amount of information mutually acquired between specific terminal units, and it ends. That is, a desired specific terminal unit is chosen with a terminal unit selection means or a selection change means if needed, and detailed information can be acquired by the selection.

[0011] Therefore, in this invention, in addition to an effect of the invention according to claim 1 or 2, the amount of information processing of an information acquisition means and an information transmitting means is mitigated further, and the effectiveness that the processing speed can be raised further arises. Invention according to claim 4 at least one specific terminal unit A among the above-mentioned specific terminal units When it is the network system according to claim 1 to 3 connected to the above-mentioned network through the interface device and the specific terminal unit A transmits [the above-mentioned management equipment] the information on each above-mentioned terminal unit to the above-mentioned management equipment, It is characterized by having an interface information acquisition means to acquire the information on the above-mentioned interface device to the interface device connected to the specific terminal unit A.

[0012] In this invention, management equipment can acquire the information on an interface device to the interface device connected to the above-mentioned specific terminal unit A with an interface information acquisition means. For this reason, in addition to an effect of the invention according to claim 1 to 3, in this invention, the effectiveness that management of an interface device becomes easy arises. Therefore, version up of a terminal unit etc. can be performed very easily.

[0013] In addition to the configuration according to claim 1 to 4, invention according to claim 5 is characterized by equipping the above-mentioned management equipment with a setting modification means to change a setup of the specific terminal unit or an interface device, further to the specific terminal unit or interface device which has transmitted the above-mentioned information to the management equipment.

[0014] In this invention, management equipment can change a setup of the specific terminal unit or an interface device into the management equipment with a setting modification means to the specific terminal unit or

interface device which has transmitted information. For this reason, it becomes possible to manage the above-mentioned specific terminal unit or an interface device by remote operation.
[0015] Therefore, in this invention, in addition to an effect of the invention according to claim 1 to 4, remote operation of a specific terminal unit or an interface device is enabled, and the effectiveness that the operability of the whole network system can be raised further arises. Invention according to claim 6 is two or more of other terminal units and the terminal unit which were connected, and is characterized through a network by to have an information acquisition means acquire the information on these terminal units of other from other terminal units connected through the above-mentioned network, and an information transmitting means transmit the information on a terminal unit besides the above acquired with this information acquisition means to the above-mentioned network with information of a terminal unit own [the].
[0016] The terminal unit of this invention can transmit to a network the information on a terminal unit besides the above acquired with the information acquisition means with information of a specific terminal unit own [the] with an information transmitting means while acquiring the information on these other terminal units from other terminal units connected through the network with an information acquisition means.
[0017] For this reason, if it is used for the network system equipped with two or more terminal units by which the terminal unit of this invention was connected to the network, and the management equipment which manages this each terminal unit through the above-mentioned network, the same effectiveness as invention according to claim 1 will arise. Moreover, the terminal unit of this invention as well as a terminal unit according to claim 1 must not acquire all the information on the terminal units of the others connected through the network, and may acquire the information on some terminal units.
[0018] In addition to the configuration according to claim 6, invention according to claim 7 is characterized by the information on a terminal unit besides the above including the link information for specifying the terminal unit on the above-mentioned network. Thus, the information on a terminal unit besides the above as used in the field of this invention includes the link information of the terminal unit. For this reason, in the reason same with having explained this invention in relation to invention according to claim 2, in addition to an effect of the invention according to claim 6, the amount of information processing of an information acquisition means and an information transmitting means is mitigated further, and the effectiveness that that processing speed can be raised further arises.
[0019] The storage according to claim 8 is characterized by memorizing the software program for operating a computer as each means **, claims 3 and 4 which constitute the above-mentioned management equipment, or given in five. For this reason, if the computer of the management equipment which manages two or more terminal units containing the above-mentioned specific terminal unit through a network is made to execute the software program memorized by the storage of this invention, a computer can be operated as each means claims 3 and 4 or given in five, and the network system of a publication can be easily realized to it at that claim.
[0020]
[Embodiment of the Invention] Next, the gestalt of operation of this invention is explained with a drawing. In addition, the gestalt of the operation explained below is an example of the gestalt which applied this invention to the network system managed using the so-called WWW (broader-based information system which built the hypertext on the network and was made accessible to all information).
[0021] Here, when the outline is explained about Above WWW, the WWW concerned is other computers (computer which is a computer equipped with a WWW browser and a called program (program for carrying out sequential perusal of the established state of the above-mentioned terminal unit etc. for every terminal unit), peruses and grasps the condition of each terminal unit, and manages a network by this.) about network administration information on a terminal unit like the printer in the gestalt of this operation. a following and browser computer -- calling -- it is an information system for managing unitary. And in order to express the condition of each terminal unit, the image and text which show the condition concerned using the software called a hypertext are expressed. Moreover, as a protocol used for the communication link between a browser computer and each terminal unit, the so-called HTTP is used and the language called HTML (Hyper Text Markup Language) is used as language which expresses a hypertext further, for example.
[0022] In the gestalt of this operation moreover, on each terminal unit It has CGI (Common GatewayInterface) and a called program. The CGI concerned constitutes HTML corresponding to the assignment concerned by assignment from a browser computer, or From a browser computer to a server computer (it prepares for NIC,

and it is the processing section which offers data or control information to the printer connected to the NIC concerned, and this is contained in the server computer about the above CGI for NIC.) Information transmitted (generally it is called form.) For example, when the user of a browser computer sets up the number of copies in a printer with "5", the form "COPIES=5" is transmitted to CGI in a server computer from a browser computer. It is for interpreting. At this time, it specifies by identifying each terminal unit for assignment of the terminal unit from a browser computer based on the identification information (it being the identification information of each terminal unit proper, and having URL which is different by the printer connected to NIC and it speaking of the gestalt of this operation.) called URL.

[0023] Next, the configuration of the network system S of the gestalt of this operation is explained using drawing 1 . In addition, although all the printers 10-40 as a terminal unit are equipped with the configuration of a specific terminal unit like the after-mentioned in the network system S, it is good only also considering some printers as a specific terminal unit.

[0024] As shown in drawing 1 , the network system S of the gestalt of this operation The networks W, such as the browser computer G as management equipment, the telephone line, or LAN Two or more NIC1 as an interface device, and the printers 10, 30, and 40 as a terminal unit, It is constituted by the image scanner 70 connected with two or more computers 20 connected to the printer 10 concerned at juxtaposition at the printer 40, and the form sorter 80 connected at the serial at the printer 40. Here, printers 10, 30, and 40 are printers of a different model.

[0025] On the other hand, the browser computer G is equipped with CPU50, ROM51, and RAM52, and the mouse 53 and the CRT54 grade are connected. Moreover, NIC1 is equipped with the transceiver 2 as a reply means, the LAN controller 3, a shared memory 4, CPU5, ROM6 and RAM7, and a bus 8, and is. Here, ROM6 has memorized beforehand HTML6a for NIC, and CGI6b for NIC to the interior.

[0026] Furthermore, the printer 10 is equipped with CPU11, ROM12 and RAM13, a bus 14, the output interface (output I/F) 15, the input interface (input I/F) 16, and the printing section 17. Here, ROM12 has memorized beforehand HTML12a for printers, and CGI12b for printers to the interior. In addition, the printer 10 is connected to each computer 20 through the input interface 16 while connecting with NIC1 through connection Rhine 9 connected to the bus 14.

[0027] Next, the outline actuation in a network system S is explained using drawing 1 . In addition, in the following explanation, although the processing in NIC1 and a printer 10 is explained, same processing is performed between other NIC1 and a printer 30.

[0028] CPU50 in the browser computer G generates the demand information (a request is only called hereafter.) for requiring information required in order to grasp the condition of a printer 10 that NIC1 is connected, by browser computer G from a printer 10, and transmits it to the transceiver 2 of NIC1 through Network W.

[0029] And the transceiver 2 which received the request restores to this, and outputs it to a bus 8 through the LAN controller 3. Here, if it illustrates concretely about the request concerned, the following will be transmitted as a request, for example.

[0030] ** "GET /nic/****.html HTTP/1.0 "** " GET /nic-CGI/****.exe HTTP/1.0 "** " GET /printer/****.html HTTP/1.0 "** " GET /printer-CGI/****.exe In these examples, it is what shows that "GET" is a request. HTTP/1.0" -- "nic", "nic-CGI", "printer", and "printer-CGI" are URL, and "****.html" or "****.exe" is the object (generally it is called a resource.) of management. It is the shown information (the name which shows various resources to the part of "****" is described.). "HTTP/1.0" is the version information of HTTP. URL ("nic" or "nic-CGI") which shows NIC1 to the request concerned at this time -- or URL ("printer" or "printer-CGI") which shows a printer 10 -- that either is added.

[0031] Next, when the request which NIC1 received is a request containing URL which specifies a printer 10, CPU5 transmits the request concerned to a printer 10 through a shared memory 4 and connection Rhine 9 (for example, when URL of "printer" or "printer-CGI" is included like the example shown in the above-mentioned ** or **). After writing a request in a shared memory 4 in that case, CPU5 generates an interrupt (interruption command) to CPU11 through the signal line which is not illustrated, and performs processing of the request concerned. In addition, the control program required for the processing of CPU5 to the request mentioned above is beforehand memorized by ROM6.

[0032] Next, if the request which specifies the printer 10 transmitted from NIC1 is inputted into a printer 10 through connection Rhine 9, CPU11 will process the request concerned using CGI12b for printers and

HTML12a for printers which are memorized in ROM12, after acquiring the request concerned through a bus 14. At this time, what processes only by the HTML12a for printers concerned about what can be processed only by HTML12a for printers, and can be processed only by CGI12b for printers is processed only by the CGI12b for printers concerned. Then, CPU11 answers NIC1 through a bus 14, connection Rhine 9, and a shared memory 4 in the response which is the result of processing. The control program required for the processing of CPU11 to this request is beforehand memorized by ROM12.

[0033] Furthermore, NIC1 which received the response to the request which should be processed in a printer 10 from the printer 10 transmits the response concerned to the browser computer G through Network W as it is. And in the browser computer G which received the response from a printer 10, the image or text corresponding to the response received, respectively is displayed on CRT54, and the operating state of NIC1 concerned or a printer 10 etc. is grasped.

[0034] In addition, although each printers 10, 30, and 40 contained in the network system S are equipped with common NIC1, they are the things of a different class as the printer itself, and, specifically, have become that from which HTML for printers or CGI for printers memorized by each printer differed for every printer. Moreover, other printers which are not illustrated through NIC of a model which is different in NIC1 are connected to Network W.

[0035] Next, a printer 10 answers the browser computer G in the response which included the information on a printer besides the above with the information on printer 10 self, when the information on NIC1 connected to self is acquirable in other printers connected through Network W and NIC, and a list and a predetermined request is received from the browser computer G in them. Hereafter, this processing is explained to a detail.

[0036] If the browser computer G specifies the IP address of one of printers (for example, printer 10) and has a return key pressed, it will start the processing shown in drawing 2 . First, the printer screen 200 of the printer 10 chosen by the IP address in S1 (: showing a step S is the same as that of the following) is displayed on CRT54. Here, an IP address is a kind of the network address which makes each equipment identifiable on Network W.

[0037] So that it may illustrate to drawing 5 this printer screen 200 Image Fig. 201 which shows the condition of a printer visually, and the pilot lamp section 203 which shows the condition of a printer red, yellow, and in the shape of [blue] a signal, URL205 which shows the whereabouts of the information on a printer 10, and the model name 207 of a printer 10, The refresh carbon button 211 which can be clicked with the mouse 53 of a printer 10, the view configuration carbon button 213, the control panel carbon button 215, the printer setting carbon button 217, the online support carbon button 219, an administrator setting carbon button (It is hereafter called a manager setting carbon button) 221, and the find device carbon button 223 and ** are displayed.

[0038] Here, the refresh carbon button 211 is a carbon button which directs to reread the information on a printer 10. The view configuration carbon button 213 is a carbon button for displaying the version information of a printer 10 etc. The control panel carbon button 215 is a carbon button which displays the control panel of a printer 10 on CRT54, and operates the control panel by remote control. The printer setting carbon button 217 is a carbon button for carrying out various setup of a printer 10 by browser computer G. The online support carbon button 219 is a carbon button for opening the homepage of the manufacturer of a printer 10 and displaying support information. The manager setting carbon button 221 is a carbon button for displaying the below-mentioned NIC information screen. The find device carbon button 223 is a carbon button for indicating the information on all the printers connected to Network W by list.

[0039] The browser computer G transmits a status information demand to a printer 10 in processing of S1. CPU11 of a printer 10 is performing processing shown in drawing 3 , and it is answered as follows in information that a status information demand is received. As shown in drawing 3 , CPU11 is performing loop-formation processing which repeats [whether there was any status information demand, whether there was any printer research demand (S41), and] decision of ** by turns (S43), and if there is a status information demand (S41:YES), it will shift to S44. In S44, the status information of the printer 10 by which self belongs is edited into an HTML file, the browser computer G is answered in the HTML file in S45 continuing, and it shifts to the above-mentioned loop-formation processing (S41, S43).

[0040] The browser computer G displays the printer screen 200 illustrated to drawing 5 based on this status information (S1). In S3 continuing, it judges whether one carbon button of the printer screens 200 was pushed, and it stands by until it is pushed. And a push on the find device carbon button 223 displays the find device screen 300 illustrated to drawing 6 (S7).

[0041] The icon 301 and the information 303 on each printer on each printer connected to the network 301, this URL305, the model name 307, and the above-mentioned carbon buttons 211-223 and the various carbon buttons 310 of the almost same contents are displayed on the find device screen 300 so that it may illustrate to drawing 6 . In addition, an icon 301 is displayed in the same color as the color which has turned on the above-mentioned pilot lamp section 203.
[0042] Moreover, the browser computer G transmits a printer research demand to a printer 10 in this processing. Then, affirmative judgment of CPU11 of a printer 10 is carried out in S43 of drawing 3 , and it shifts to S47. In S47, research processing of the inhouse printer shown in drawing 4 is performed.
[0043] As shown in drawing 4 , in this research processing, it judges whether information requirements were transmitted to each printer with the UDP/IP protocol (S91), and there was any reply in S93 continuing. When there is no reply, it judges whether (S93:NO) and the predetermined time which shifted to S95 and was set up beforehand passed, and if it has not passed (S95:NO), it returns to S93. If a reply is received between this loop-formation processing of S93 and S95, affirmative judgment will be carried out in S93, and it will shift to S97. In S97, it judges whether it is a reply from a its company printer, and if it is not its company make, it will return to the above-mentioned loop-formation processing (S93, S95) as it is.
[0044] In addition, decision of being this its company make is performed by inserting a printer manufacturer's trademark etc. in the reply as a keyword from the printer received in the information requirements transmitted in S91, and S93. Moreover, each printer will generate a random number, if the above-mentioned information requirements are received, and after [corresponding to the random number] doing the number msec. standby of, the browser computer G is answered in the information on own. For this reason, the device information from each printer is answered by the browser computer G through Network W to the scattering timing according to the above-mentioned random number.
[0045] If it judges that it is a reply from a its company printer (YES) in S93, the information included in the reply in S99 will be stored in RAM13, and it will return to the above-mentioned loop-formation processing (S93, S95). And if [above-mentioned] predetermined time continuation is carried out, affirmative judgment of this processing will be carried out in S95, and it returns to processing of drawing 3 . Then, the information on a printer that storing of the information by S99 was made between the above-mentioned predetermined time in S49 continuing is edited into an HTML file, and the browser computer G is answered in the file by S45 continuing. In addition, termination of processing of S45 returns processing of CPU11 to loop-formation processing of S41 and S43 again.
[0046] In S7 of drawing 2 , the find device screen 300 is displayed based on the information on each printer which carried out in this way and was received. It stands by in continuing S9, performing [judge whether it clicked on the icon 301, and] other processings (S11:, for example, processing corresponding to the depression of the various carbon buttons 310) until it is pushed. And if any one of the icons 301 is clicked (S9:YES), it will shift to S1 and printer screen 200a (drawing 7) corresponding to the icon 301 on which it clicked will be displayed. Since this printer screen 200a is the same as that of what was shown in drawing 5 almost, suffix a is given to the sign showing each part, and detailed explanation is omitted. In addition, in printer screen 200a, display 233a which shows the generating location of display 231a which directs generating of a jam, and a jam by flashing was made by image Fig. 201a, and red has turned on pilot lamp section 203a to it. In printer screen 200,200a, the condition of a printer is displayed in this way.
[0047] Moreover, if manager setting carbon button 221,221a is pushed by printer screen 200,200a, it will shift to S13 from S5 of drawing 2 , and the NIC information screen 400 (drawing 8) will be displayed. On this NIC information screen 400, the information on NIC1 is displayed and various processings, such as update of firmware and configuration of NIC, can be performed. URL405 of NIC1 is displayed on this NIC information screen 400, and the Home carbon button 407 for returning to printer display screen 200,200a below is displayed on it.
[0048] So, in S15 following S12, it judges whether the Home carbon button 407 was pushed, and when pushed, it returns to S(S15:YES) 1, and printer screen 200,200a is displayed. Moreover, when the Home carbon button 407 is not pushed, other processings (for example, update of firmware) based on (S15:NO) and other actuation are performed, and it shifts to S15 again. Moreover, also when other carbon buttons 211,211a-221,221a are pushed in printer screen 200,200a, it shifts to S19 from S5, other processings according to the button grabbing are performed, and the further carbon button depression is stood by (S3).

[0049] Thus, in the network system S of the gestalt of this operation, each printer transmits the acquired information to the browser computer G with the information on own while acquiring the information on these other printers from other printers connected through Network W. For this reason, by browser computer G, the information on a printer besides the above is also acquirable with the information on that printer only by acquiring information from one printer. In a network system S, the information on a printer can be acquired efficiently, without using a server computer.

[0050] Moreover, in the network system S, the browser computer G is answered with status information in URL of each printer. If even link information, such as URL (a link information is sufficient), is known, based on the link information, the detailed information on a printer is easily acquirable. For this reason, in a network system S, the amount of information which each printer must acquire from other printers, and the amount of information which must be transmitted to the browser computer G can be reduced. The amount of information processing of a system can be mitigated further, and the processing speed can be raised further.

[0051] Moreover, in a network system S, after being able to choose the printer which acquires information by clicking on an icon 301 and pushing the find device carbon button 223, the printer chosen by clicking on the icon 301 of other printers can also be changed. For this reason, there is comparatively little amount of information mutually acquired between printers, and it ends. That is, a desired printer can be chosen if needed and detailed information, such as information on NIC1, can be acquired by the selection.

[0052] Furthermore, in a network system S, the NIC information screen 400 can be displayed and the information on NIC as an interface device can also be acquired. For this reason, management of NIC becomes easy, firmware is updated and the activity of making a printer upgrade etc. can also be done very easily. And a setup of the printer or NIC can be changed also on printer screen 200,200a or the NIC information-display screen 400. For this reason, it becomes possible to manage a printer and NIC by remote operation.

[0053] In the gestalt of the above-mentioned implementation processing of S47 and drawing 4 In addition, information acquisition processing, Information transmitting processing and the processing at the time of icon 301 depression [in / in processing of S45 / S9] Terminal unit selection processing, Selection change processing and processing of S13 Interface information acquisition processing, [the processing which results in S9 through S5 to S7] The processing at the time of control panel carbon button 215,215a in S19 or a printer setting carbon button 217,217a depression is equivalent to a setting modification means, respectively.

[0054] Moreover, this invention is not limited to the gestalt of the above-mentioned implementation at all, and can be carried out with gestalten various in the range which does not deviate from the summary of this invention. For example, the printer 10 grade in a network system S must not acquire all the information on the terminal units of the others connected through Network W, and may acquire the information on some printers. For example, you may make it some printers acquire the information on all the scanners of others [scanners / some] for the information on all other printers, respectively by the system which connected two or more printers and two or more scanners to Network W as a terminal unit.

[0055] Moreover, as a storage which memorized each processing of a publication to drawing 2 - drawing 4 , various gestalten besides components, such as ROM and RAM, can be considered. For example, CD-ROM, a FUROPI disk, a magneto-optic disk, a hard disk, etc. are sufficient, and you may be a file server on the Internet. Moreover, it can be used, making the storage of this invention able to read into personal computer (personal computer) equipment. Furthermore, this invention is applicable not only to the so-called print system which used the printer but various network systems, such as an online karaoke system.

[Translation done.]

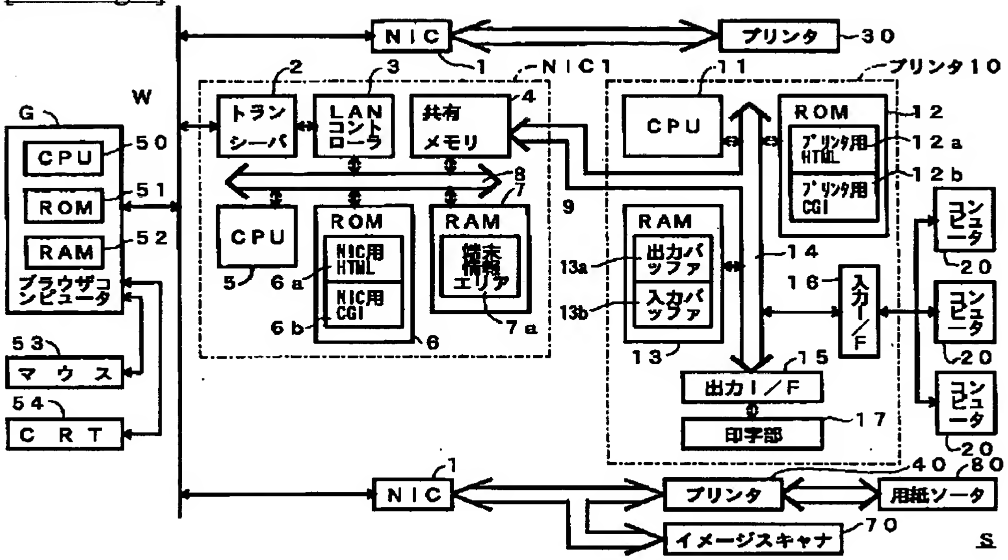
* NOTICES *

JPO and NCIPI are not responsible for any damages caused by the use of this translation.

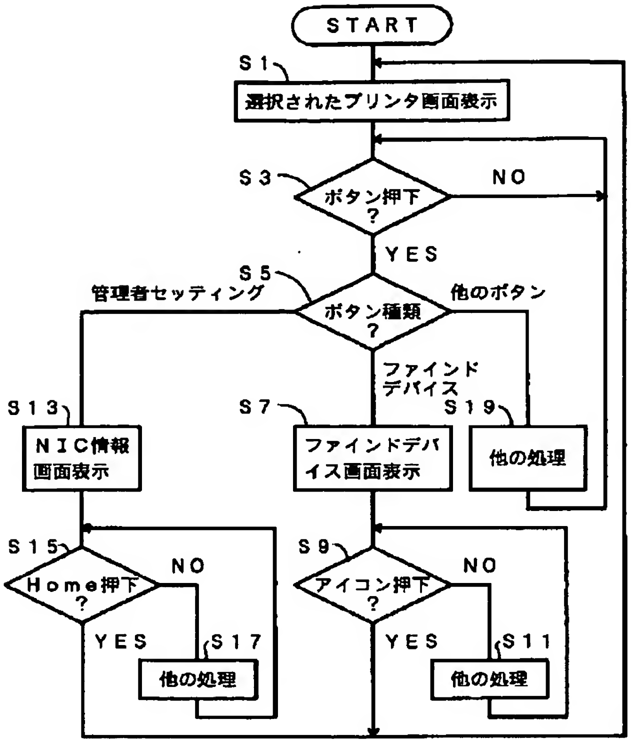
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

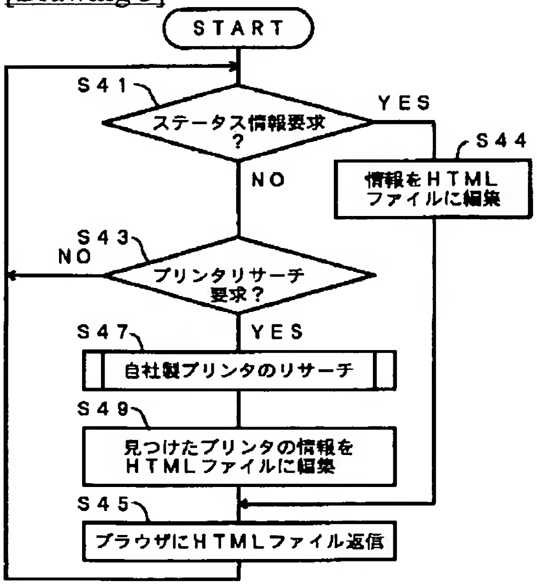
[Drawing 1]


NIC
プリンタ
30
1
2
3
NIC1
11
プリンタ10
W
G
トランシーバ
LANコントローラ
共有メモリ
4
CPU
ROM
12
CPU
50
プリンタ用HTML
12a
ROM
51
プリンタ用CGI
12b
RAM
52
8
7
9
ブラウザコンピュータ
CPU
ROM
RAM
RAM
コンピュータ
20
NIC用HTML
端末情報エリア
13a
出力バッファ
14
5
6a
16
入力I/F
コンピュータ
20
NIC用CGI
13b
入力バッファ
6b
7a
6
53
13
15
マウス
出力I/F
コンピュータ
54
17
CRT
印字部
20
1
40
80
NIC
プリンタ
用紙ソータ
70
イメージスキャナ
S

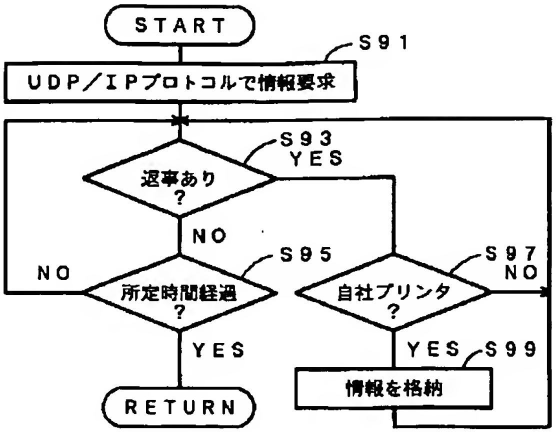
[Drawing 2]


START
S1
選択されたプリンタ画面表示
S3
ボタン押下？
NO
YES
S5
管理者セッティング
ボタン種類？
他のボタン
ファインドデバイス
S13
NIC情報画面表示
S7
ファインドデバイス画面表示
S19
他の処理
S15
Home押下？
NO
YES
S17
他の処理
S9
アイコン押下？
NO
YES
S11
他の処理

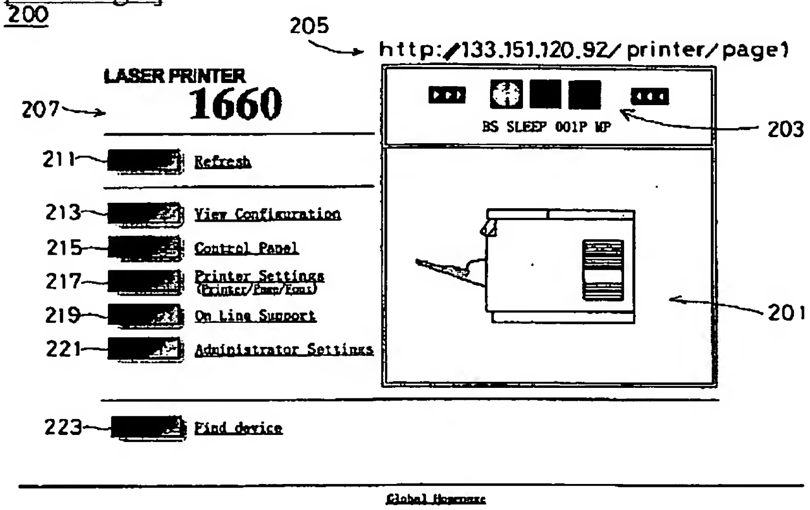
[Drawing 3]


START
S41
ステータス情報要求？
YES
NO
S44
情報をHTMLファイルに編集
S43
NO
プリンタリサーチ要求？
S47
YES
自社製プリンタのリサーチ
S49
見つけたプリンタの情報をHTMLファイルに編集
S45
ブラウザにHTMLファイル返信

[Drawing 4]

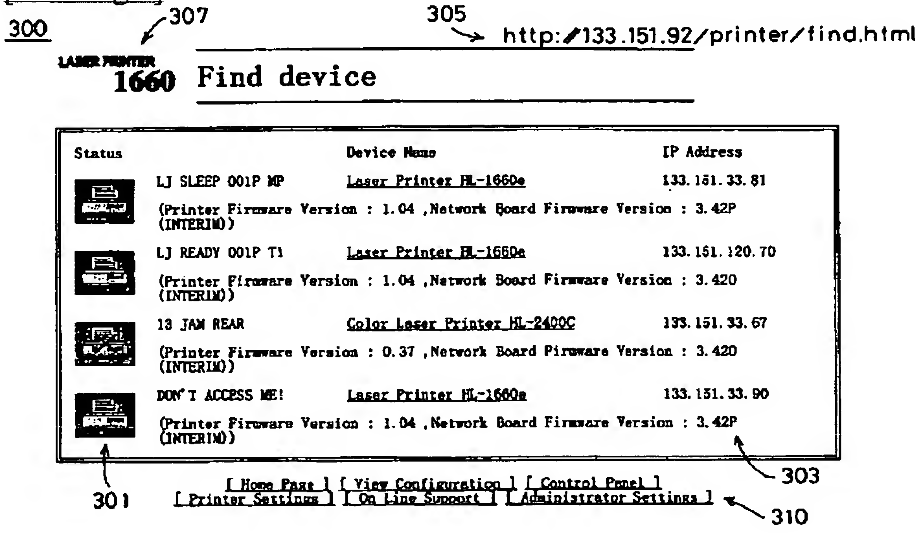

START
S91
UDP／IPプロトコルで情報要求
S93
YES
返事あり
?
NO
S95
NO
所定時間経過
?
YES
RETURN
S97
NO
自社プリンタ
?
YES
S99
情報を格納

[Drawing 5]


200
205
http://133.151.120.92/printer/page1
LASER PRINTER
1660
207
203
BS SLEEP 001P MP
211
Refresh
213
View Configuration
215
Control Panel
217
Printer Settings
(Printer/Paper/Font)
219
On Line Support
221
Administrator Settings
201
223
Find device
Global Homepage

BEST AVAILABLE COPY

[Drawing 6]

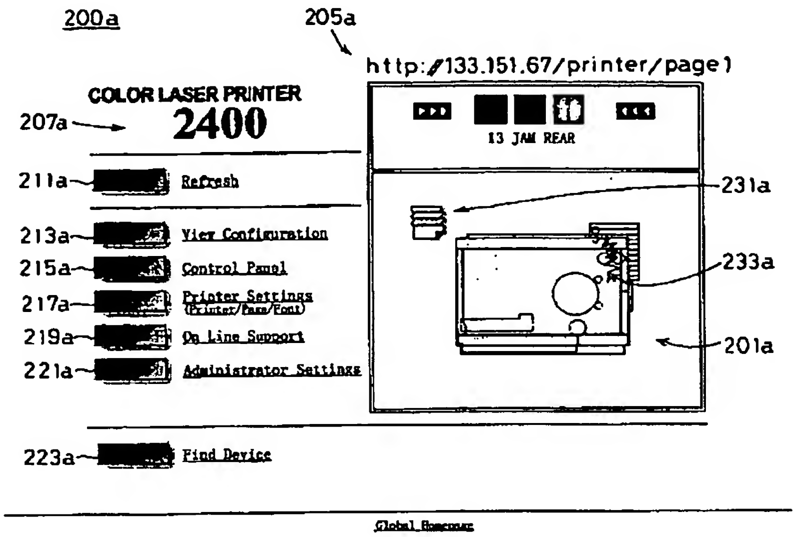

300
307
305
http://133.151.92/printer/find.html
LASER PRINTER
1660

Find device

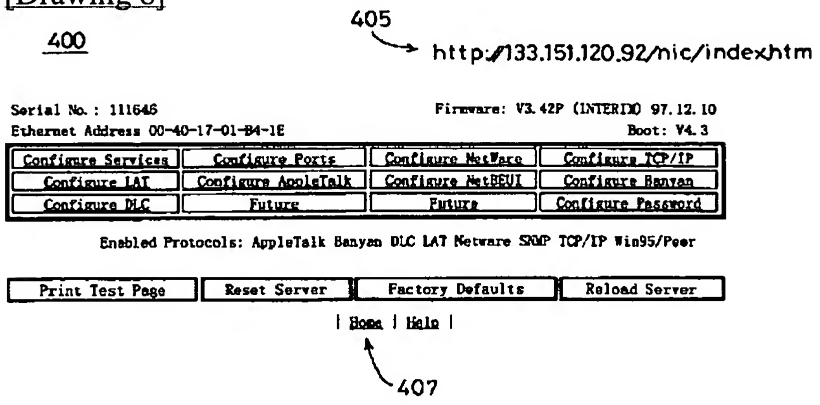
Status		Device Name	IP Address
	LJ SLEEP 001P MP	Laser Printer HL-1660e	133.151.33.81
	(Printer Firmware Version : 1.04 ,Network Board Firmware Version : 3.42P (INTERIM))		
	LJ READY 001P T1	Laser Printer HL-1660e	133.151.120.70
	(Printer Firmware Version : 1.04 ,Network Board Firmware Version : 3.420 (INTERIM))		
	13 JAM REAR	Color Laser Printer HL-2400C	133.151.33.67
	(Printer Firmware Version : 0.37 ,Network Board Firmware Version : 3.420 (INTERIM))		
	DON'T ACCESS ME!	Laser Printer HL-1660e	133.151.33.90
	(Printer Firmware Version : 1.04 ,Network Board Firmware Version : 3.42P (INTERIM))		

[Home Page] [View Configuration] [Control Panel]
[Printer Settings] [On Line Support] [Administrator Settings]
301
303
310

[Drawing 7]


200a
205a
http://133.151.67/printer/page1
COLOR LASER PRINTER
2400
207a
13 JAM REAR
211a
Refresh
231a
213a
View Configuration
233a
215a
Control Panel
217a
Printer Settings
(Printer/Page/Font)
219a
On Line Support
201a
221a
Administrator Settings
223a
Find Device
Global Homepage

[Drawing 8]


400
405
http://133.151.120.92/nic/index.htm
Configure Services
Configure Ports
Configure NetWare
Configure TCP/IP
Configure LAT
Configure AppleTalk
Configure NetBEUI
Configure Banyan
Configure DLC
Future
Future
Configure Password
Print Test Page
Reset Server
Factory Defaults
Reload Server
| Home | Help |
407

Serial No. : 111646
Firmware: V3.42P (INTERIM) 97.12.10
Ethernet Address 00-40-17-01-B4-1E
Boot: V4.3

Enabled Protocols: AppleTalk Banyan DLC LAT Netware SNMP TCP/IP Win95/Peer

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[Translation done.]